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THE USER EXPERIENCE OF PERSONALIZED CONTENT

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Abstract Content in digital services is often filtered for users based on individual preferences with the possible consequence of creating a state referred to as a "filter bubble". The objective of this paper is to examine which of a user's inherent needs that are important to satisfy when a user is consuming personalized content in a digital service. The paper uses a survey to measure the need for autonomy, competence and relatedness of the Self-Determination Theory when users are consuming filtered content in digital services. The results show that the investigated services fail to satisfy all needs. A satisfactory user experience should include the opportunity for the user to satisfy the need for autonomy, competence and relatedness. For autonomy, transparency of filtering and choice about filtering should be offered. For competence, it is essential to offer content that the user can learn from, and also provide the right amount of choice throughout the service. The danger of filter bubbles is not personalization, but to remove choice about personalization.

Keywords: filter bubble, user experience, facebook, instagram, netflix, spotify.

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1 Introduction

Nowadays, it is a common practice to filter content for users based on individual preferences, so called personalization. One way of personalizing content is to base suggestions on users' previous choices and behavior (Schubert & Koch, 2002). However, one consequence of this is a state where the user is consuming similar content to that which the user has been exposed to before – so-called "filter bubble" (Pariser, 2011a). The existence of filter bubbles and their potential impact on people are often discussed from a societal viewpoint (Zuiderveen Borgesius et al., 2016). The agreed upon problem with filter bubbles is that people who operate within them get biased information and this in turn poses a threat to democracy (Pariser, 2011a; El-Bermawy, 2016). A filter bubble's subtle effect makes it difficult for the user to recognize its influence and prevent being caught in it (Pariser, 2015). Therefore, the responsibility does not lie with the user but with the companies that provide digital services and implement filtering (Zuiderveen Borgesius et al., 2016). In order to present content that is not harmful to the user in the long run, the basic needs of the user must be known. The objective of this pilot study is to examine which of a user's inherent needs that are important to satisfy when a user is consuming personalized content in a digital service. Understanding those matters, this article aims to describe what qualities and behavior regarding autonomy, competence and relatedness to consider for personalized content in aspects of user satisfaction.

2 Theoretical Framework

The information available on the internet today can be overwhelming, Facebook, alone, have over two billion active users who produce different content. To deal with all this content personalized filtering is common using algorithms to create the most accurate user profile in order to predict the user's next move and what content the user wants to see (Pariser, 2011b). Personalization of content has the primary goal of enhancing the user experience and increase the likelihood of repeated visits and usage of digital services (Schubert & Koch, 2002). Personalization is achieved when a system tailors the user experience by matching metadata of products or services with metadata of user profiles. It is common to log self-revealed preferences, socio-economic status, user ratings, relationships to other users, previous interactions and purchases. Nearly every company that gathers this type of data use it for personalization, Amazon, Spotify and Netflix give recommendations

based on users' activity. This has also led companies such as Facebook and Google to be accused of personalizing content even though their underlying mechanism for filtering is kept a secret (Hern, 2017). Hence, the effects on users of algorithm-based personalized content can be negative as they can cause filter bubbles (DiFranzo & Gloria-Garcia, 2017). The bubble occurs when systems serve each user with unique information thus altering the way users are consuming ideas and information (Pariser, 2011b). Users are then no longer exposed to outside options and views; they are operating within bubbles that only reflects parts of the whole. This leads to heavily opinionated audiences and narrow perspectives of opinion (Zuiderveen Borgesius et al., 2016).

The Internet have provided users with increasing choices on what media to consume. However, the power is still not held by the users but with the companies that control what the users consume (Pariser, 2011b). In this way, filters illustrate choice. The more filtered and personalized content is, the less is left for the consumer to choose. Filter bubbles can also be difficult to pierce through (Pariser, 2011b). Not only does the user have to perform deliberate actions to burst the bubble, it also demands an awareness from the user about being exposed to filtered content (DiFranzo & Gloria-Garcia, 2017). The actual existence and impact of filter bubbles have been debated for some time now. However, there has been a large upswing since 2016 after the result from the EU Referendum in U.K. and the U.S. presidential election. The predicted results of these events were far from the actual outcomes, and Social Media was directly accused of this (DiFranzo & Gloria-Garcia, 2017). In 2018 it was discovered that the company Cambridge Analytica (now shut down) had a role in this by selling data about Facebook users to political campaigns that were able to target specific groups based on the data (Solon, 2018). Due to the secrecy of large actors like Facebook and Google, it is generally hard for outside researchers and investigators to conduct empirical research on filtering algorithms (Zuiderveen Borgesius et al., 2016). However, in a highly criticized study Facebook has conducted its own studies on filter bubbles, claiming a not significant existence (Ingram, 2015).

Another important aspect regarding this area is the user's curiosity and exploration. The definition for curiosity is a need, thirst, or desire for knowledge. Exploration refers to all activities concerned with gathering information about the environment (Edelman, 1997). Curiosity can be interpreted as form of arousal, which arises from

the perception of a gap in knowledge or understanding (Loewenstein, 1994). Curiosity can also change focus or end abruptly. Despite its volatility, curiosity can be a powerful motivational force. It has a close connection to motivation, which is the direction and persistence of behavior. Every time we are using a feature in a design, we have expectations and those expectations can be met in various degrees. This is one cornerstone of what is generally called user experience (Norman& Nielsen, n.d.) and when constructions features, the goal is, most often, to create a high user satisfaction. Hence, satisfaction is the "condition of having a desire or need fulfilled (Cambridge Dictionary, n.d.). Previous research has shown close likes between user satisfaction and motivation, e.g. the Self-Determination Theory (e.g. White, 2015)

2.1 Self-determination theory

Self-Determination Theory (SDT) is a macro-theory of motivation within psychology and has derived from empirical research of motivation. It concerns human motivation, personality, and optimal functioning in a social context. SDT uses psychological needs for explaining goal directed behavior. A critical effect of pursuing goals is to which degree people are able to satisfy their innate psychological needs. Three primary needs are essential in SDT - Competence, Relatedness and Autonomy (Deci & Ryan, 2000). Being able to fulfill these needs has a positive effect on psychological health, while the opposite results in negative effects. All three needs are inherent in humans; however, they are not automatically activated. To be actualized they need to be activated and nurtured by stimuli from the subjects' social environment (Deci & Ryan, 2000). A study about the correlation between choice and the level of autonomy (Deci, 1971) led researchers to develop the theory of self-determination (Zuckerman, 1978) that discuss two types of motivation - Intrinsic, when doing an activity for its inherent satisfactions, and extrinsic, when the activity is done to attain some separable outcome.

Autonomy and choice. Intrinsic motivation is a strong force when it comes to nurturing the needs of the integrated self (Deci & Ryan, 2000). It is a fragile balance as offering extrinsic reward for intrinsic motivational behavior decreases the sense of individual autonomy (Deci, 1971). When intrinsic motivation is controlled by external means, the autonomy becomes undermined. Research shows that the participant who have to make more choices also have an increased level of intrinsic

motivation to the task, and therefore an enhanced feeling of autonomy (Zuckerman, 1978). More recent research on choice has shown that it is not the mere act of choosing that triggers intrinsic motivation, but whether the content of the choice aligns with the participants self and personal goals (Katz & Assor, 2006). Further, results differ between picking and choosing. Picking refers to choice without preferences, and is less motivating than choosing. For choice to be motivating, the choices should differ markedly in relevance for the participant. At least one of the alternatives has to be more relevant, interesting or important (Katz & Assor, 2006). But the actual consequence of the choice is not important. Even choices that appear trivial, are experienced as meaningful by the participants.

Competence and choice. Choice also affects competence (Katz & Assor, 2006). According to SDT, more choice is increasing competence, but research has shown that the feeling of competence is dependent on the complexity of the choice. If the choice environment is complex, subjects tend to choose the most "default" option, not choose at all or ask for outside expertise. The feeling of not being able to comprehend choice decreases the feeling of competence. Since choices that are too easy also undermines motivation, an intermediate level of choice is optimal.

3 Method

This pilot research is based on an online survey that assesses the individual's awareness of and effect on them of personalized content. The survey also investigated the interplay between filtering and the three needs for competence, autonomy and relatedness. Questions about choice are based on the streaming services, Netflix and Spotify, as recommendations from those system were relatively easy to spot and measure. Questions about more subtle filtering are based on the social media platforms, Facebook and Instagram, where filtered content appear in newsfeeds. The users were to choose the service in each category that the user felt most familiar with. The survey was developed by using guidelines for collecting data (Law, 2017) and consisted of both closed (Likert scale) and open ended questions. The targeted group was students that have experienced the transition from regular content to filtered content. The survey received 22 responses (30% female) and the participants were 18-34 years of age.

4 Results and discussion

The results were even between choosing Facebook or Instagram as the most used application. 20% claimed to spend less than 10 minutes a day on their chosen newsfeed application, and 30% spend more than an hour a day. It is suggested that the difference regarding Facebook and Instagram are probably not because of levels of filtering but due to the purpose of the applications being different, the answers that were more similar are of more interest and, hence, discussed below.

4.1 Filtering in newsfeeds

Autonomy. Since people were somewhat addicted to Facebook and Instagram, users do not completely act out of their own interests when using these applications. That is enforced by the fact that users even felt bored while scrolling the feeds. Acting out of one's interest is a key factor for satisfying the autonomy. Filtering can be a cause of the addiction, as the newsfeeds never appear the same when closing and re-opening the applications compelling users to return to see constantly loading new content on "refresh".

Autonomy and choice. The results show that Facebook users classified the content as more general than personal, and when scrolling they felt bored rather than entertained. Instagram users classified the content as more personal than general. However, they were also bored when scrolling the feeds. When participants were asked about their level of addiction, Facebook users were a little addicted to not feeling addicted at all. Some of the Instagram users were a little addicted, but there were users who also felt a stronger addiction to the application. Analyzing autonomy and choice, neither Facebook nor Instagram users felt they had control over the content in their newsfeeds, even though Instagram users technically choose whom to follow. This lack of control was evidenced by the participants' negative feelings about recommended posts and ads. There is a decreased amount of choice when a system is choosing the content leading to a decreasing the feeling of autonomy and negative feelings.

Competence. If curiosity is triggered by consumption of the media content, intrinsic motivation to the task increases. That was the case from the survey, as users estimated that they sometimes or often investigated content further. Users also felt that the variety of content in the newsfeeds of Facebook and Instagram were poor,

or even very poor. A low variety means that the users are continually exposed to similar content, and therefore not learning from it. This leads to a scenario where a gap of knowledge is triggered by the content and creates curiosity. The user then investigates content further, but new content is similar to previous content. Hence, the goal of competence is not fulfilled.

Competence and choice. Instagram users thought it was very easy to find interesting posts or new people to follow. However, the fact that it was perceived as very easy can mean that the complexity of choice is to low, and that Instagram offers picking rather than choosing. According to the theory (Katz & Assor, 2006), picking is easier than choice, and the alternatives must differ markedly to be categorized as choice so in regard to choice, Instagram does not satisfy the feeling of competence. This relates to filtering in the way that picking someone to follow (direct recommendations, clicking a profile who interacted with a post in the newsfeed or using the explore tab) is based on who the user already follows, a form of self-imposed filtering. Unlike Instagram, Facebook users claimed that it was very hard to find interesting content, and that they had little influence on what was displayed in the feeds. This describes filtering at its worse in relation to user experience. To rate content as uninteresting is a result of the user not learning anything new and means that the user is not able to satisfy the need for competence. Moreover, the almost complete lack of choice within Facebook leaves the user with no room for customization after own preferences, and therefore competence is not at all fulfilled.

Relatedness. People felt that they could be themselves to some degree, but that their posts were not completely aligned with their own interests. One could argue that in an ideal world people would be able to be themselves completely on or offline, however, there are rules to adapt to in all social contexts. Posts can have boundaries of what is acceptable but if people are still able to integrate themselves into a larger social whole, the need for relatedness will be satisfied.

4.2 Filtering in Recommendation services

Many of the answers differed between Spotify and Netflix. In general, the respondents seemed more content with Spotify. One reason for that could be that it takes more commitment and time investment to watch a movie or series than listening to a song. Users might therefore have higher expectations of Netflix. 75% of the respondents spent more than 30 minutes a day on their chosen application.

Autonomy. Since both Netflix and Spotify users liked the services, usage of both services is an act that aligns with the user's integrated selves. It is not necessarily a contradiction that Netflix users rated the content as quite mainstream. It can either be that they like content that is aimed at a general audience, or that they fail to estimate that content actually is based on recommendations. Content that is based on the lower common denominator is a typical example of a filter bubble's effect. However, the survey is insufficient in describing which scenario that applies in this specific case. Neither does this contradict the level of autonomy. As long as the user is happy with consuming the content, it means that it is aligned with the user's interests. Users were happy with the recommendations in Spotify, meaning recommendations have a positive influence on autonomy. The level of autonomy was not quite as high for Netflix users.

Autonomy and choice. The mostly used features are recommendation services and search function within the applications. Spotify's "Playlist" and "Discover weekly" were the most used. Scrolling, search and "Popular on Netflix" were used the most among Netflix users. Though Netflix users classified the content as quite mainstream (not personalized), they still liked Netflix. Spotify users thought of the content ranged from medium to personal, and their opinions on the content ranged between okay to good. Spotify users were not united about estimating how much they could affect music recommendations. This can be a result of Spotify's hierarchy to present content; some users understand how to use it in order to get specific music recommended, and some do not. The level of intrinsic motivation to the task of choosing type of music was therefore individual. Netflix users were more united regarding the feeling of control and answered a three. None were likely to use Netflix recommendations to find something to watch, they would rather rely on magazines, websites or friends' suggestions. Conversely, a majority preferred recommendation services in Spotify to find something to listen to.

Competence. Both Netflix and Spotify users thought that the variety of recommendations was only okay, as was the case with Facebook and Instagram. A low variety means that the users are exposed to similar content and not learning from it. If the user only depends on recommendations, then there is not enough new input provided in order to satisfy the autonomy in the long run.

Competence and choice. A recommendation from the Spotify resulted in 60% often being positively surprised, the rest had not reflected upon this. 40% were positively surprised by a Netflix recommendation, 40% had not reflected upon it and 20% were negatively surprised. When entering Netflix homepage without anything to watch, it was common that the users were experiencing negative feelings like frustration or disinterest. Users were not experiencing curiosity. Spotify users were, contrary, were likely to investigate further based on a recommendation such as artist or albums, however their answers ranged across the whole scale. The rating between Netflix and Spotify users regarding their perception about choice and content differed markedly. 75% of Netflix users were unhappy with choice and content, and the remaining 25% were happy. In the case of Spotify, 72% of the users were happy with choice and content and only 28% were unhappy. Spotify users thought it was quite easy to find new music. Netflix users thought it was a little harder to find new movies or series. The answers on this section differed markedly between Netflix and Spotify as the way the applications present content also differs. There are more sections, menus and services within Spotify than Netflix. This can be the reason why 72% of the Spotify users thought "there's a lot to choose from and I always find something good", but only 25% Netflix users was felt this way This implies that the way things are displayed has an effect on choice. Even though the huge library, the majority of Netflix user's thought that "there is a lot to choose from, but nothing is good". That is why this result can be directly translated to the fact that the choice environment in Netflix is too complex or there is a mismatch in the recommender system and the individuals' tastes. As the content is filtered to fit individual preferences, the user still has to pick something within the filtered content. Motivation can more easily be activated through Spotify as their way of structuring content gives the user a choice (rather than a pick) on what to listen to. A scenario classified as choice can be "Should I let Spotify decide today, go with the Radio or perhaps with my own Playlist?". As for Netflix, there are less options that would be classified as choice but more of picking, as their recommendations system is closer

to a newsfeed format, with a scroll function for browsing different lists on the main page.

4.3 Awareness

In relation to the respondent's awareness of filtered content 54% thought they received some personal content, 38% thought they received mostly personal content and 8% thought they received no personal content. The respondents were generally fine with giving up their data to the respective service they were using, such as what they watch or what they listen to. However, they were expressed concerned about personal data being shared to other applications, or the sharing of personal data "other" than taste in music or movies. 87% had noticed a sudden change in their newsfeeds based on something they did in the application. Their reactions to sudden changes in their newsfeeds were mostly negative; many were annoyed at the applications assumptions, but also concerned, and some felt they were being supervised. Some respondents had noticed a shift to more mainstream content than previously and that their newsfeeds were becoming more homogeneous.

The filter algorithms that operate in the background (they do not inform user that content is filtered) are still evident to the user, usually by a sudden change of which type of content that is displayed, based on a user action. The users' responses to these changes tended to be very negative. While the users responded well to filtered content in the form of recommendations, the negative reaction to subtle filtering related to newsfeeds where the amount of filtering is unknown, and where perceived control of filtering and what content to be displayed is low.

5 Conclusions

The Self-Determination Theory has originally been applied to traditional social environments, but these days it is fair to say that a technological environment makes no exception for what is considered real, and that the technological environment can be classified as a social environment. The results of this pilot study show that connections between SDT and algorithm driven personalization is likely, and that in turn can serve as guidelines for creating a satisfactory user experience. It is important that the needs for self-determination are met, as they are not actualized themselves but need external stimuli. As technology is continuing to be integrated into our

everyday lives, it is therefore very important to include SDT when designing for a long-term satisfactory user experience. The digital service should provide autonomy that ensures the user has the ability to act out of own interests and values. By clarifying what is filtered, the users get a stronger sense of autonomy while using the digital service. It should also provide competence, meaning that the user should feel competent about tasks and overall usage of the digital service. This can be achieved by offering material that the user can learn from. If the digital service provides a social aspect, then relatedness should be considered as well to give the user opportunity to integrate the self into the social environment of the digital service.

The results point towards areas within SDT that are of importance in the digital context: (1) Transparency of filtering increases trust to the digital service, and that in turn enhances the user experience. When users are given the opportunity to actively be able to choose when to consume filtered content and when not to, users have an increased intrinsic motivation. Motivation is strongly connected to autonomy. The increased level is a consequence of the user being able to act out of own interests and values, at least to a larger extent than without transparency. (2) Choice. It is not sufficient to serve the user with personalized or filtered content and simply expect a great result. How filtered content is presented, and the complexity of the choice environment is of great importance. It cannot be too complex, or too simple, in order for the user to feel competent. The service should also offer choice instead of just picking.

The study does not indicate that filtering is dangerous to the user experience. It is rather how filtering is used that has an effect on users and whether their goals of in relation to self-determination theory can be fulfilled.

The results regarding the different answers between Facebook/Instagram and Spotify/Netflix show that it is clearly not only filtering that affects people's need for autonomy, competence and relatedness, but the overall content provided and it presentation within the application. Facebook has been accused of using algorithms that are targeted towards the human triune brain by promoting viral media and click baits. This could be investigated by performing a study based on competence from SDT. The results of this study give indications on the choices to be made by content providers in order to achieve a greater user experience. Further studies are required about users, filtering and choice in digital services.

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